



SEQUENCE LISTING

<110> ICARD-LIEPKALNS, Christine
MALLET, Jacques
RAVASSARD, Philippe

<120> POLYPEPTIDES OF THE "BASIC-HELIX-LOOP-HELIX" bHLH
FAMILY, CORRESPONDING NUCLEIC ACID SEQUENCES

<130> P26,952 USA

<140> US 09/595,947

<141> 2000-06-16

<150> FR96/15651

<151> 1996-12-19

<150> PCT/FR97/02368

<151> 1997-12-19

<150> US 09/331,356

<151> 1999-07-12

<160> 40

<170> PatentIn Ver. 3.1

<210> 1

<211> 1460

<212> DNA

<213> Rattus norvegicus

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cgattagcag ctccagaagtc cctctgggtc tcaccactgc acagaggccg aggacccct 180
ccgagcttct ttgctgcctc cagacgcaat ttactccagg cgagggcgcc tgcagctcag 240
caaaacttcg aagcgagcag aggggttcag ctatccaccg ctgcttgact ctgaccaccc 300
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actggggctc tatctactcc ccagtttccc aagctggtag cctgagcccc acagcctcat 1020

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aaagggaggg agtcagagct gtctgaaatg gaaggtagtg gaggcactcg agcatctcgc 1200
cccttctggc ttctattagt caggtccttg atttaaccag gattcgcaca gttccttgct 1260
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agagtgcct aatccagtgt 1460

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<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

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<400> 2
aatkhgmng agcgndkcg cryg 24

<210> 3
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primers

<400> 3
ggcsrdtyc agggtsybga yctt 24

<210> 4
<211> 25
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primers

<400> 4
aaccttaact ccgctgga tgcgc 25

<210> 5
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<220>
<223> Description of Artificial Sequence: PCR Primers

<400> 5
cgcggtgtcc tgcccacc 18

<210> 6
<211> 6
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<220>
<223> Description of Artificial Sequence: E box

<400> 6
caggtg 6

<210> 7
<211> 6
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mutated E box

<400> 7
tccgtg 6

<210> 8
<211> 214
<212> PRT
<213> Rattus norvegicus

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Thr Gln Gln Pro Phe Pro Gly Ala Ser Asp His Glu Val Leu Ser Ser
20 25 30
Asn Ser Thr Pro Pro Ser Pro Thr Leu Val Pro Arg Asp Cys Ser Glu
35 40 45
Ala Glu Ala Gly Asp Cys Arg Gly Thr Ser Arg Lys Leu Arg Ala Arg
50 55 60
Arg Gly Gly Arg Asn Arg Pro Lys Ser Glu Leu Ala Leu Ser Lys Gln
65 70 75 80
Arg Arg Ser Arg Arg Lys Lys Ala Asn Asp Arg Glu Arg Asn Arg Met
85 90 95
His Asn Leu Asn Ser Ala Leu Asp Ala Leu Arg Gly Val Leu Pro Thr
100 105 110
Phe Pro Asp Asp Ala Lys Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala
115 120 125
His Asn Tyr Ile Trp Ala Leu Thr Gln Thr Leu Arg Ile Ala Asp His
130 135 140
Ser Phe Tyr Gly Pro Glu Pro Pro Val Pro Cys Gly Glu Leu Gly Ser
145 150 155 160
Pro Gly Gly Gly Ser Ser Gly Asp Trp Gly Ser Ile Tyr Ser Pro Val
165 170 175
Ser Gln Ala Gly Ser Leu Ser Pro Thr Ala Ser Leu Glu Glu Phe Pro
180 185 190
Gly Leu Gln Val Pro Ser Ser Pro Ser Cys Leu Leu Pro Gly Thr Leu

195

200

205

Val Phe Ser Asp Phe Leu
210

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<212> DNA
<213> Homo sapiens

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gacgggcagg ggaaagaggg atcctctgac ccagcggggg ctgggaggat ggctgttttt 240
gttttttccc acctagcctc ggaatcgcg actgcgccgt gacggactca aacttaccct 300
tccctctgac cccgccgtag gatgacgcct caaccctcgg gtgcgcccac tgtccaagt 360
accggtgaga cggagcggtc cttcccaga gcctcggaag acgaagtgc ctgccccacg 420
tccgccccgc ccagccccac tcgcacaccg gggaactgcg cagaggcgga agagggaggc 480
tgccgagggg ccccgaggaa gctccgggca cggcgcgggg gacgcagccg gcctaagagc 540
gagttggcac tgagcaagca gcgacggagt cggcgaaaga aggccaacga ccgcgagcgc 600
aatcgaatgc acgacctcaa ctcggcactg gacgccctgc gcggtgtcct gccaccttc 660
ccagacgacg cgaagctcac caagatcgag acgctgcgt tcgcccaca ctacatctgg 720
gcgctgactc aaacgctgcg catagcggac cacagcttgt acgcgctgga gccgccggcg 780
ccgcactgcg gggagctggg cagcccaggc ggtccccccg gggactgggg gtccctctac 840
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ctgctggggg ccacctcttc cgctgcttg agcccaggca gtctggcttt ctgagatttt 960
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gccgggagcc gtagagggtg gccgacggcg gcggccctca aaagcacttg ttccttctgc 1080
ttctccctag ctgacctctg gccggcccag gcctccacgg gggcggtagg ctgggttcat 1140
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gcattgcaaa gtgcgctcat ttaggcctc ctctctgcca ccacccata atccattca 1260
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ccctcactca 1330

<210> 10
<211> 214
<212> PRT
<213> Homo sapiens

<400> 10
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1 5 10 15
Thr Glu Arg Ser Phe Pro Arg Ala Ser Glu Asp Glu Val Thr Cys Pro
Page 4

20										25										30																																		
Thr	Ser	Ala	Pro	Pro	Ser	Pro	Thr	Arg	Thr	Pro	Gly	Asn	Cys	Ala	Glu																																							
		35					40					45																																										
Ala	Glu	Gly	Gly	Gly	Cys	Arg	Gly	Ala	Pro	Arg	Lys	Leu	Arg	Ala	Arg																																							
	50					55					60																																											
Arg	Gly	Gly	Arg	Ser	Arg	Pro	Lys	Ser	Glu	Leu	Ala	Leu	Ser	Lys	Gln																																							
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Arg	Arg	Ser	Arg	Arg	Lys	Lys	Ala	Asn	Asp	Arg	Glu	Arg	Asn	Arg	Met																																							
			85					90						95																																								
His	Asp	Leu	Asn	Ser	Ala	Leu	Asp	Ala	Leu	Arg	Gly	Val	Leu	Pro	Thr																																							
		100					105					110																																										
Phe	Pro	Asp	Asp	Ala	Lys	Leu	Thr	Lys	Ile	Glu	Thr	Leu	Arg	Phe	Ala																																							
	115					120					125																																											
His	Asn	Tyr	Ile	Trp	Ala	Leu	Thr	Gln	Thr	Leu	Arg	Ile	Ala	Asp	His																																							
	130				135					140																																												
Ser	Leu	Tyr	Ala	Leu	Glu	Pro	Pro	Ala	Pro	His	Cys	Gly	Glu	Leu	Gly																																							
	145				150				155					160																																								
Ser	Pro	Gly	Gly	Pro	Pro	Gly	Asp	Trp	Gly	Ser	Leu	Tyr	Ser	Pro	Val																																							
		165					170					175																																										
Ser	Gln	Ala	Gly	Ser	Leu	Ser	Pro	Ala	Ala	Ser	Leu	Glu	Glu	Arg	Pro																																							
	180					185					190																																											
Gly	Leu	Leu	Gly	Ala	Thr	Ser	Ser	Ala	Cys	Leu	Ser	Pro	Gly	Ser	Leu																																							
	195					200				205																																												
Ala	Phe	Ser	Asp	Phe	Leu																																																	
	210																																																					

<210> 11
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: PCR Primer

<400> 11
 caacgaccgg cagcgcaa 18

<210> 12
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: PCR Primer

<400> 12
 gcccagatgt agttgtgggc gaag 24

<210> 13
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: PCR Primer

<220>

<223> n = a, c, t, or g

<400> 13

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<210> 14

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 14

agacgacgcg aagctcacca 20

<210> 15

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 15

gctcaccaag atcgagacgc tgcg 24

<210> 16

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 16

atcggttgaga ctcgtaccag cagag 25

<210> 17

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 17

tcgtaccagc agagtcacga gagag 25

<210> 18

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 18

ctgccagcct gggagactg 19

<210> 19
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

<400> 19
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<210> 20
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

<400> 20
gatgtcacgc agagtgcgca ggtag 25

<210> 21
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

<400> 21
agcctgggag actggggagt aga 23

<210> 22
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

<400> 22
agagtgcgca ggtagcgaga ggag 24

<210> 23
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

<400> 23
cgctatgcgc agcgtttgag tc 22

<210> 24
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

<400> 24

cctcggaccc cattctctct tcttt 25

<210> 25

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer

<400> 25

tgagtgaggg tagggcgacc caag 24

<210> 26

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Probe

<400> 26

aggaagctcc gggca 15

<210> 27

<211> 1381

<212> RNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Probe

<400> 27

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uuugaauuggg auuauggggu gguggcagag aggaggccua aaaugagcgc acuuugcaau 180
gcccacuucg cgcgggcagc agcaaggguu gcgugcguug gcgcggcucg gagggccggg 240
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g 1381

<210> 28
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<212> RNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Probe

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gauggcuguu uuuguuuuuu cccaccuagc cucggaucg cggacugcgc cgugacggac 360
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gaccugcccc acguccgccc cgcccagccc cacucgcaca ccggggaacu gcgcagaggc 540
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auaaucccau ucaaagaaua cuagaauggu agcacuaccc ggccggagcc gcccaccguc 1380
uugggucgcc cuaccucac uaaaucgaa uucccgcggc cgccaug 1427

<210> 29
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<212> DNA
<213> Rattus norvegicus

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tcccatactt cctggtgact ccgccctctt tcaaactctgc gggcctccaa ccaccgcttt 660
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<210> 30
<211> 108
<212> PRT
<213> Rattus norvegicus

<400> 30

Arg Gly Val Leu Pro Thr Phe Pro Asp Asp Ala Lys Leu Thr Lys Ile
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Glu Thr Leu Arg Phe Ala Leu Asn Tyr Ile Trp Ala Leu Thr Gln Thr
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Leu Arg Ile Ala Asp His Ser Phe Tyr Gly Pro Glu Pro Pro Val Pro
35 40 45
Cys Gly Glu Leu Gly Ser Pro Gly Gly Gly Ser Ser Gly Asp Trp Gly
50 55 60
Ser Ile Tyr Ser Pro Val Ser Gln Ala Gly Ser Leu Ser Pro Thr Ala
65 70 75 80
Ser Leu Glu Glu Phe Pro Gly Leu Gln Val Pro Ser Ser Pro Ser Cys
85 90 95
Leu Leu Pro Gly Thr Leu Val Phe Ser Asp Phe Leu
100 105

<210> 31
 <211> 60
 <212> PRT
 <213> Rattus norvegicus

<400> 31

Ser Arg Arg Lys Lys Ala Asn Asp Arg Glu Arg Asn Arg Met His Asn
 1 5 10 15

Leu Asn Ser Ala Leu Asp Ala Leu Arg Gly Val Leu Pro Thr Phe Pro
 20 25 30

Asp Asp Ala Lys Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala His Asn
 35 40 45

Tyr Ile Trp Ala Leu Thr Gln Thr Leu Arg Ile Ala
 50 55 60

<210> 32
 <211> 60
 <212> PRT
 <213> Mus musculus

<400> 32

Gln Arg Arg Leu Ala Ala Asn Ala Arg Glu Arg Arg Arg Met His Gly
 1 5 10 15

Leu Asn His Ala Phe Asp Gln Leu Arg Asn Val Ile Pro Ser Phe Asn
 20 25 30

Asn Asp Lys Lys Leu Ser Lys Tyr Glu Thr Leu Gln Met Ala Gln Ile
 35 40 45

Tyr Ile Asn Ala Leu Ser Glu Leu Leu Gln Thr Pro
 50 55 60

<210> 33
 <211> 60
 <212> PRT
 <213> Mus musculus

<400> 33

Leu Arg Arg Met Lys Ala Asn Ala Arg Glu Arg Asn Arg Met His Gly
 1 5 10 15

Leu Asn Ala Ala Leu Asp Asn Leu Arg Lys Val Val Pro Cys Tyr Ser
 20 25 30

Lys Thr Gln Lys Leu Ser Lys Ile Glu Thr Leu Arg Leu Ala Lys Asn
 35 40 45

Tyr Ile Trp Ala Leu Ser Glu Ile Leu Arg Ser Gly
 50 55 60

<210> 34
<211> 60
<212> PRT
<213> Mus musculus

<400> 34

Ala Ala Val Ala Arg Arg Asn Glu Arg Glu Arg Asn Arg Val Lys Leu
1 5 10 15

Val Asn Leu Gly Phe Ala Thr Leu Arg Glu His Val Pro Asn Gly Ala
20 25 30

Ala Asn Lys Lys Met Ser Lys Val Glu Thr Leu Arg Ser Ala Val Gln
35 40 45

Tyr Ile Arg Ala Leu Gln Gln Leu Leu Asp Glu His
50 55 60

<210> 35
<211> 237
<212> PRT
<213> Homo sapiens

<400> 35

Met Pro Ala Arg Leu Glu Thr Cys Ile Ser Asp Leu Asp Cys Ala Ser
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Ser Ser Gly Ser Asp Leu Ser Gly Phe Leu Thr Asp Glu Glu Asp Cys
20 25 30

Ala Arg Leu Gln Gln Ala Ala Ser Ala Ser Gly Pro Pro Ala Pro Ala
35 40 45

Arg Arg Ser Ala Pro Asn Ile Ser Arg Ala Ser Glu Val Pro Gly Ala
50 55 60

Gln Asp Asp Glu Gln Glu Arg Arg Arg Arg Arg Gly Arg Thr Arg Val
65 70 75 80

Arg Ser Glu Ala Leu Leu His Ser Leu Arg Arg Ser Arg Arg Val Lys
85 90 95

Ala Asn Asp Arg Glu Arg Asn Arg Met His Asn Leu Asn Ala Ala Leu
100 105 110

Asp Ala Leu Arg Ser Val Leu Pro Ser Phe Pro Asp Asp Thr Lys Leu
115 120 125

Thr Lys Ile Glu Thr Leu Arg Phe Ala Tyr Asn Tyr Ile Trp Ala Leu
130 135 140

Ala Glu Thr Leu Arg Leu Ala Asp Gln Gly Leu Pro Gly Gly Gly Ala
Page 12

145 150 155 160
 Arg Glu Arg Leu Leu Pro Pro Gln Cys Val Pro Cys Leu Pro Gly Pro
 165 170 175
 Pro Ser Pro Ala Ser Asp Ala Glu Ser Trp Gly Ser Gly Ala Ala Ala
 180 185 190
 Ala Ser Pro Leu Ser Asp Pro Ser Ser Pro Ala Ala Ser Glu Asp Phe
 195 200 205
 Thr Tyr Arg Pro Gly Asp Pro Val Phe Ser Phe Pro Ser Leu Pro Lys
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 Asp Leu Leu His Thr Thr Pro Cys Phe Ile Pro Tyr His
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 <210> 36
 <211> 244
 <212> PRT
 <213> Mus musculus

 <400> 36
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 Cys Ala Arg Leu Gln Pro Leu Ala Ser Thr Ser Gly Leu Ser Val Pro
 35 40 45
 Ala Arg Arg Ser Ala Pro Ala Leu Ser Gly Ala Ser Asn Val Pro Gly
 50 55 60
 Ala Gln Asp Glu Glu Gln Glu Arg Arg Arg Arg Gly Arg Ala Arg
 65 70 75 80
 Val Arg Ser Glu Ala Leu Leu His Ser Leu Arg Arg Ser Arg Arg Val
 85 90 95
 Lys Ala Asn Asp Arg Glu Arg Asn Arg Met His Asn Leu Asn Ala Ala
 100 105 110
 Leu Asp Ala Leu Arg Ser Val Leu Pro Ser Phe Pro Asp Asp Thr Lys
 115 120 125
 Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala Tyr Asn Tyr Ile Trp Ala
 130 135 140
 Leu Ala Glu Thr Leu Arg Leu Ala Asp Gln Gly Leu Pro Gly Gly Ser
 145 150 155 160

Ala Arg Glu Arg Leu₁₆₅ Leu Pro Pro Gln Cys₁₇₀ Val Pro Cys Leu₁₇₅ Pro Gly

Pro Pro Ser Pro₁₈₀ Ala Ser Asp Thr Glu₁₈₅ Ser Trp Gly Ser Gly₁₉₀ Ala Ala

Ala Ser Pro₁₉₅ Cys Ala Thr Val Ala₂₀₀ Ser Pro Leu Ser Asp₂₀₅ Pro Ser Ser

Pro Ser Ala Ser Glu Asp Phe₂₁₅ Thr Tyr Gly Pro Gly₂₂₀ Asp Pro Leu Phe

Ser₂₂₅ Phe Pro Gly Leu Pro₂₃₀ Lys Asp Leu Leu His₂₃₅ Thr Thr Pro Cys Phe₂₄₀

Ile Pro Tyr His

<210> 37
<211> 214
<212> PRT
<213> Mus musculus

<400> 37

Met Ala Pro His Pro₅ Leu Asp Ala Leu Thr₁₀ Ile Gln Val Ser Pro Glu₁₅

Thr Gln Gln Pro₂₀ Phe Pro Gly Ala Ser₂₅ Asp His Glu Val Leu₃₀ Ser Ser

Asn Ser Thr₃₅ Pro Pro Ser Pro Thr₄₀ Leu Ile Pro Arg Asp₄₅ Cys Ser Glu

Ala Glu Val Gly Asp Cys₅₅ Arg Gly Thr Ser Arg Lys₆₀ Leu Arg Ala Arg

Arg Gly Gly Arg Asn Arg₇₀ Pro Lys Ser Glu Leu₇₅ Ala Leu Ser Lys Gln₈₀

Arg Arg Ser Arg Arg₈₅ Lys Lys Ala Asn Asp₉₀ Arg Glu Arg Asn Arg Met₉₅

His Asn Leu Asn₁₀₀ Ser Ala Leu Asp Ala₁₀₅ Leu Arg Gly Val Leu₁₁₀ Pro Thr

Phe Pro Asp₁₁₅ Asp Ala Lys Leu Thr₁₂₀ Lys Ile Glu Thr Leu₁₂₅ Arg Phe Ala

His Asn Tyr Ile Trp Ala Leu₁₃₅ Thr Gln Thr Leu Arg₁₄₀ Ile Ala Asp His

Ser Phe Tyr Gly Pro Glu Pro Pro Val Pro Cys Gly Glu Leu Gly Ser

145 150 155 160
 Pro Gly Gly Gly Ser Asn Gly Asp Trp Gly Ser Ile Tyr Ser Pro Val
 165 170 175
 Ser Gln Ala Gly Asn Leu Ser Pro Thr Ala Ser Leu Glu Glu Phe Pro
 180 185 190
 Gly Leu Gln Val Pro Ser Ser Pro Ser Tyr Leu Leu Pro Gly Ala Leu
 195 200 205
 Val Phe Ser Asp Phe Leu
 210

 <210> 38
 <211> 214
 <212> PRT
 <213> Rattus norvegicus

 <400> 38
 Met Ala Pro His Pro Leu Asp Ala Pro Thr Ile Gln Val Ser Gln Glu
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 Thr Gln Gln Pro Phe Pro Gly Ala Ser Asp His Glu Val Leu Ser Ser
 20 25 30
 Asn Ser Thr Pro Pro Ser Pro Thr Leu Val Pro Arg Asp Cys Ser Glu
 35 40 45
 Ala Glu Ala Gly Asp Cys Arg Gly Thr Ser Arg Lys Leu Arg Ala Arg
 50 55 60
 Arg Gly Gly Arg Asn Arg Pro Lys Ser Glu Leu Ala Leu Ser Lys Gln
 65 70 75 80
 Arg Arg Ser Arg Arg Lys Lys Ala Asn Asp Arg Glu Arg Asn Arg Met
 85 90 95
 His Asn Leu Asn Ser Ala Leu Asp Ala Leu Arg Gly Val Leu Pro Thr
 100 105 110
 Phe Pro Asp Asp Ala Lys Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala
 115 120 125
 His Asn Tyr Ile Trp Ala Leu Thr Gln Thr Leu Arg Ile Ala Asp His
 130 135 140
 Ser Phe Tyr Gly Pro Glu Pro Pro Val Pro Cys Gly Glu Leu Gly Ser
 145 150 155 160
 Pro Gly Gly Gly Ser Ser Gly Asp Trp Gly Ser Ile Tyr Ser Pro Val
 165 170 175

Ser Gln Ala Gly Ser Leu Ser Pro Thr Ala Ser Leu Glu Glu Phe Pro
180 185 190

Gly Leu Gln Val Pro Ser Ser Pro Ser Cys Leu Leu Pro Gly Thr Leu
195 200 205

Val Phe Ser Asp Phe Leu
210

<210> 39
<211> 214
<212> PRT
<213> Homo sapiens
<400> 39

Met Thr Pro Gln Pro Ser Gly Ala Pro Thr Val Gln Val Thr Arg Glu
1 5 10 15

Thr Glu Arg Ser Phe Pro Arg Ala Ser Glu Asp Glu Val Thr Cys Pro
20 25 30

Thr Ser Ala Pro Pro Ser Pro Thr Arg Thr Pro Gly Asn Cys Ala Glu
35 40 45

Ala Glu Glu Gly Gly Cys Arg Gly Ala Pro Arg Lys Leu Arg Ala Arg
50 55 60

Arg Gly Gly Arg Ser Arg Pro Lys Ser Glu Leu Ala Leu Ser Lys Gln
65 70 75 80

Arg Arg Ser Arg Arg Lys Lys Ala Asn Asp Arg Glu Arg Asn Arg Met
85 90 95

His Asp Leu Asn Ser Ala Leu Asp Ala Leu Arg Gly Val Leu Pro Thr
100 105 110

Phe Pro Asp Asp Ala Lys Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala
115 120 125

His Asn Tyr Ile Trp Ala Leu Thr Gln Thr Leu Arg Ile Ala Asp His
130 135 140

Ser Leu Tyr Ala Leu Glu Pro Pro Ala Pro His Cys Gly Glu Leu Gly
145 150 155 160

Ser Pro Gly Gly Pro Pro Gly Asp Trp Gly Ser Leu Tyr Ser Pro Val
165 170 175

Ser Gln Ala Gly Ser Leu Ser Pro Ala Ala Ser Leu Glu Glu Arg Pro
180 185 190

Gly Leu Leu Gly Ala Thr Ser Ser Ala Cys Leu Ser Pro Gly Ser Leu
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195

200

205

Ala Phe Ser Asp Phe Leu
210

<210> 40
<211> 263
<212> PRT
<213> Mus musculus

<400> 40

Met Phe Val Lys Ser Glu Thr Leu Glu Leu Lys Glu Glu Glu Glu Val
1 5 10 15

Leu Met Leu Leu Gly Ser Ala Ser Pro Ala Ser Ala Thr Leu Thr Pro
20 25 30

Met Ser Ser Ser Ala Asp Glu Glu Glu Asp Glu Glu Leu Arg Arg Pro
35 40 45

Gly Ser Ala Arg Gly Gln Arg Gly Ala Glu Ala Glu Gln Gly Val Gln
50 55 60

Gly Ser Pro Ala Ser Gly Ala Gly Gly Cys Arg Pro Gly Arg Leu Leu
65 70 75 80

Gly Leu Met His Glu Cys Lys Arg Arg Pro Ser Arg Ser Arg Ala Val
85 90 95

Ser Arg Gly Ala Lys Thr Ala Glu Thr Val Gln Arg Ile Lys Lys Thr
100 105 110

Arg Arg Leu Lys Ala Asn Asn Arg Glu Arg Asn Arg Met His Asn Leu
115 120 125

Asn Ala Ala Leu Asp Ala Leu Arg Glu Val Leu Pro Thr Phe Pro Glu
130 135 140

Asp Ala Lys Leu Thr Lys Ile Glu Thr Leu Arg Phe Ala His Asn Tyr
145 150 155 160

Ile Trp Ala Leu Thr Glu Thr Leu Arg Leu Ala Asp His Cys Ala Gly
165 170 175

Ala Gly Gly Leu Gln Gly Ala Leu Phe Thr Glu Ala Val Leu Leu Ser
180 185 190

Pro Gly Ala Ala Leu Gly Ala Ser Gly Asp Ser Pro Ser Pro Pro Ser
195 200 205

Ser Trp Ser Cys Thr Asn Ser Pro Ala Ser Ser Ser Asn Ser Thr Ser
210 215 220

Pro Tyr Ser Cys Thr Leu Ser Pro Ala Ser Pro Gly Ser Asp Val Asp
225 230 235 240

Tyr Trp Gln Pro Pro Pro Pro Glu Lys His Arg Tyr Ala Pro His Leu
245 250 255

Pro Leu Ala Arg Asp Cys Ile
260